CLAIMS

1. A master information carrier comprising an array of ferromagnetic films formed on a base surface according to information signals, the master information carrier being used for forming a magnetized pattern corresponding to the array of the ferromagnetic films in an in-plane magnetic recording medium through application of a magnetic field with the master information carrier opposing the in-plane magnetic recording medium,

wherein a length of each ferromagnetic film is larger than a length between magnetic transition areas of the magnetized pattern to be formed by the ferromagnetic film in the in-plane magnetic recording medium.

2. A master information carrier comprising an array of ferromagnetic films formed on a base surface according to information signals, the master information carrier being used for forming a magnetized pattern corresponding to the array of the ferromagnetic films in an in-plane magnetic recording medium through application of a magnetic field with the master information carrier opposing the in-plane magnetic recording medium,

wherein a distance between adjacent ferromagnetic films is smaller than a length between magnetic transition areas of the magnetized pattern to be formed by each ferromagnetic film in the in-plane magnetic recording medium.

3. A method for manufacturing a magnetic recording medium comprising: overlapping the master information carrier according to claim 1 or claim 2 on an in-plane magnetic recording medium,

applying a magnetic field and thus performing a preformat recording of the magnetized pattern corresponding to the array of the ferromagnetic films in the master information carrier for the in-plane magnetic recording medium.

4. The method for manufacturing a magnetic recording medium according to claim 3, wherein the in-plane magnetic recording medium is magnetized in an opposite polarity to the magnetic field by applying a d.c. magnetic field on the in-plane magnetic recording medium prior to the operation of overlapping the master information carrier.

5. A method for manufacturing a magnetic recording medium comprising the steps of applying a magnetic field while opposing a master information carrier provided with an array of ferromagnetic films formed according to information signals on a base surface against a surface of a vertical magnetic recording medium and thus performing a preformat recording of a magnetized pattern corresponding to the array of the ferromagnetic films for a magnetic layer in the vertical magnetic recording medium,

wherein the magnetic field is applied parallel to the surface direction of the ferromagnetic film and to the magnetic layer of the vertical magnetic recording medium.

6. The method for manufacturing a magnetic recording medium according to claim 5, wherein magnetization of the vertical magnetic recording medium is erased to a neutral point in advance at least either by applying a magnetic field alternately in opposite directions or through application of a thermomagnetization method before the master information carrier is opposed against the surface of the vertical magnetic recording medium.

7. The method for manufacturing a magnetic recording medium according to claim 5, wherein initial magnetization having an opposite polarity to the magnetic field is formed in the magnetic layer of the vertical magnetic recording medium by applying a magnetic field in one direction before the master information carrier is opposed against the surface of the vertical magnetic recording medium.

8. The method for manufacturing a magnetic recording medium according to any one of claims 5 to 7, wherein a thickness of the ferromagnetic films is not more than a minimum value of a length of the ferromagnetic films.

9. The method for manufacturing a magnetic recording medium according to claim 5, comprising:

providing the magnetic field by shifting a magnetic transcription head arranged on the side of a back face of the master information carrier relative to the master information carrier while maintaining a constant distance between the magnetic transcription head and the back face of the master information carrier in a state in which the surface of the master information carrier and the surface of the vertical magnetic recording medium are opposed to each other, and

separating the magnetic transcription head from the master information carrier in a position corresponding to an area where the ferromagnetic films are not formed.

10. The method for manufacturing a magnetic recording medium according to claim 9, wherein the magnetic transcription head is shifted perpendicular to the surface of the master information carrier at the time when the magnetic transcription head is separated from the master information carrier.

11. The method for manufacturing a magnetic recording medium according to claim 9, wherein the magnetic transcription head is shifted parallel to the surface of the master information carrier at the time when the magnetic transcription head is separated from the master information carrier.

12. The method for manufacturing a magnetic recording medium according to any one of claims 5 to 8, comprising:

providing the magnetic field by shifting a magnetic transcription head arranged on the side of a back face of the master information carrier and provided with an electromagnet relative to the master information carrier while maintaining a constant distance between the magnetic transcription head and the back face of the master information carrier in a state in which the surface of the master information carrier and the surface of the vertical magnetic recording medium are opposed to each other, and

separating the magnetic head from the master information carrier after electric current to the electromagnet of the magnetic transcription head is cut off.

13. The method for manufacturing a magnetic recording medium according to any one of claims 5 to 12, wherein the surface of the master information carrier comprises a land portion where the array of the ferromagnetic films is formed and a concave portion stepped against the land portion, the method comprising:

exhausting from a central side of the vertical magnetic recording medium overlapped on the master information carrier when the magnetic field is applied, generating airflow in a space formed by the vertical magnetic recording medium and the concave portion of the master information carrier, and thus closely contacting the master information carrier with the vertical magnetic recording medium.